H.264 Network Video Encoder User Manual

Product: BLK-IPE101

Please read this manual before using your encoder, and always follow the instructions for safety and proper use. Save this manual for future reference.

WARNING

RISK OF ELECTRIC SHOCK. DO NOT OPEN.

To reduce the risk of electric shock, do not remove cover (or back). No user serviceable parts inside. Refer servicing to qualified service personnel.

CAUTION

Operate this encoder only in environments where the temperature or humidity is within the recommended range. Operation in extreme temperatures or humidity levels may cause electric shock and shorten the life of the product.

LEGAL NOTICE

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SECTION 1

Features

The SC Black BLK-IPE101 is a professional, premium-grade, state-of-the-art encoder designed for indoor installation in networks where exceptional video and audio quality is required with minimal bandwidth and storage available. Features include:

- H.264, MPEG-4, and MJPEG real-time encoding at D1
- RTP/RTSP and unicast/multicast support
- Dual streaming mode with different codec/resolution/bit rate
- De-interlacing on DSP
- Loop-out video for external monitors
- Two ways audio
- RS-485/422 serial port for Pan/Tilt/Zoom
- RS-232C serial port for POS terminal
- Motion detection by hardware
- On Screen Display (OSD) by hardware
- Power over Ethernet (PoE) support
- Video Content Analysis Presence, Surveillance (optional)
- RTSP and HTTP-API for application development available

BLK-IPE101 encoder front panel

1.1 Front panel indicators and connectors

Table 1. Status and Data LEDs indications

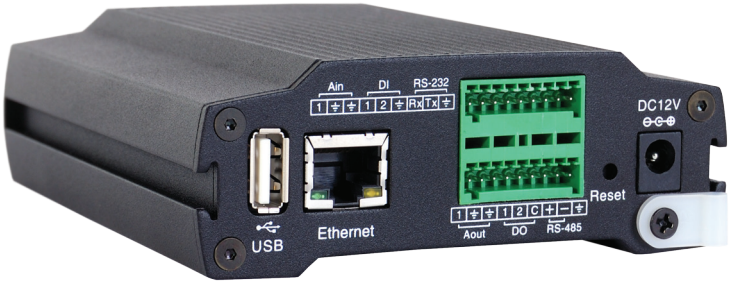
Status	Data	Item
OFF	OFF	Power OFF
System initialization		
Off	Blinking Dark Orange	In Process
Orange	Off	Normal State
Orange	Dark Orange	Abnormal State
Kernel booting up		
Orange	Green	In Process
Orange	Off	Normal State
Orange	Green	Abnormal State
Video streaming service		
Blinking Green	Off	Normal
Green	Off	Abnormal
DSP operation status		
Orange blinks at every 1 second	Off	Normal
Orange blinks at every 1 second	Red	High Overload

Vin Video input BNC connector

SD Slot for SD type memory card; for external storage

Vout For loop out of video input

1.2 Back panel connectors



BLK-IPE101 encoder back panel

USB Connect to a USB device (or USB hub) for external storage.

Ethernet RJ-45 LAN connector for 10/100Base-T Ethernet. This connector accommodates PoE.

Pin block Terminal for audio output/input, alarm out, sensor in, and RS-232/RS-485 serial devices

Reset Reset switch for restarting the encoder, or resetting the encoder to factory default settings.

DC12V Power adapter connector.

SECTION 2
Installation and Setup

2.1 What's in the box

Your encoder includes the following:

- BLK-IPE101 encoder
- 12 V DC power adapter
- 9-pin terminal blocks (2)
- Hardware installation kit including mounting brackets (2), screws (4), and wall inserts (2)
- CD mini disk with application software, software manual, and encoder manual (this document)

2.2 Tools you need

To install the encoder, you will need:

- Phillips #2 screwdriver
- Drill 1/4" drill bit
- PC with Microsoft® Windows® XP SP3 or newer

2.3 Find an IP address for your encoder

Devices attached to an Local Area Network (LAN) are each assigned unique address (IP address) that they use when sending messages with each other. No two devices on a single Ethernet network can have the same IP address. Otherwise, conflicts will occur.

Your IP encoder is pre-configured with a static IP address, subnet mask, and gateway setting:

IP address:	192.168.0.100
Subnet mask:	255.255.255.0
Gateway:	192.168.0.1

Usually these settings are changed during installation to ones more compliant with the network configuration.

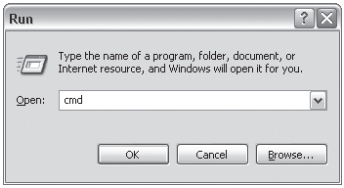
Use the following procedure to determine a compliant IP address to assign to your encoder. If connecting your encoder to a large enterprise network, consult with your network administrator before attaching the

encoder to the LAN for network settings to ensure that your encoder won't initially conflict with other devices. Your network administrator should also setup WAN (Internet) access to the encoder.

If you encounter a problem and need to contact Supercircuits Support, first complete the chart in step 1 about your Computer (PC) and encoder network settings, if possible. Support will need this information to provide assistance.

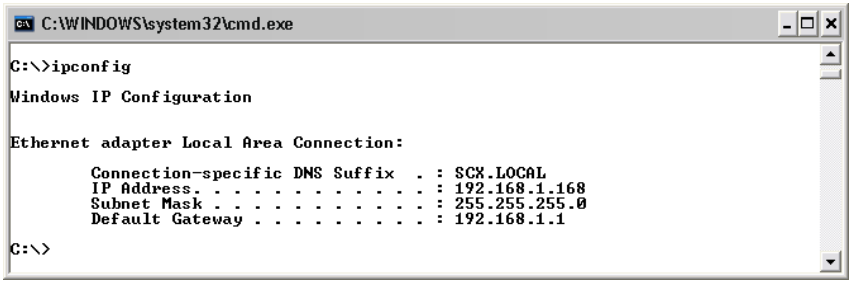
1. At a PC attached to the same LAN that will be shared with your encoder, determine the IP address, subnet mask, and default gateway of your PC and record it in Table 1. To find this information, do the following at the Windows desktop:

   a. Hold down the **Windows** key and press **r** (without the quotes) to open the Run dialog box.



   b. Type **cmd** in the entry field and click **OK** to open the DOS command window.

   c. At the command prompt, enter **ipconfig.** The PC will display Ethernet data associated with your Ethernet adapter LAN connection.


C:\WINDOWS\system32\cmd.exe
C:\>ipconfig
Windows IP Configuration
Ethernet adapter Local Area Connection:
Connection-specific DNS Suffix . : SCX.LOCAL
IP Address. . . . . : 192.168.1.168
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . : 192.168.1.1
C:\>

Example: Typical use of ipconfig in Windows XP

   d. Enter the IP Address, Subnet Mask, and Default Gateway for your PC's Ethernet adapter into Table 2.

NOTE *The Ethernet adapter data you see by using ipconfig will probably be different from that shown in the example above. If you are using Windows Vista or Windows 7, the IP address is identified as the "IPv4 Address."*

Table 2. PC/Encoder network settings

	Computer (PC)	Encoder
IP Address		
Subnet Mask		
Default Gateway		

CAUTION *If connecting your encoder to an enterprise network, consult with your network administrator for the encoder IP address, subnet mask, and default gateway.*

2. At your PC, find an IP address on your network that is not in use:

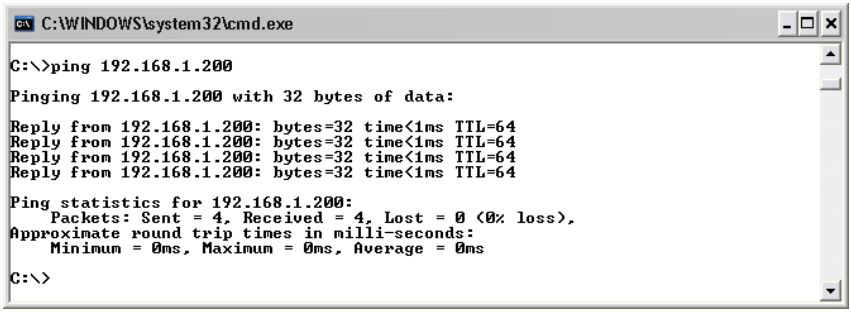
   a. Write down the EXACT IP address of your PC up to the third/last period. Using the example shown above, this expression is: 192.168.1.

   b. After the third period, include any number between 1 and 256 that is different from the one in your PC's IP address, 168. As a first try, let's choose 200, which will form the IP address 192.168.1.200.

   c. Next, use the ping command in the DOS window to see if this IP address is in use on your network. The format of the ping command is:

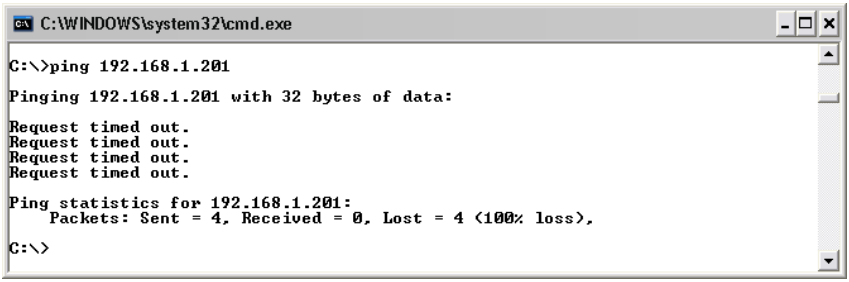
      ping <IP address>

      To test this IP address, enter **ping 192.168.1.200**. Any reply received from the ping indicates that a device on the network is already using this IP address and you can connect to it.



In the example shown above, the message "Reply from 192.168.1.200: ..." indicates that your PC can reach the device with that IP address, and that address is in use.

d. Since the ping test of the IP address we tried showed the address was in use, try another number between 1 and 256. For example, let's ping 192.168.1.201. At the DOS prompt, enter: **ping 192.168.1.201**



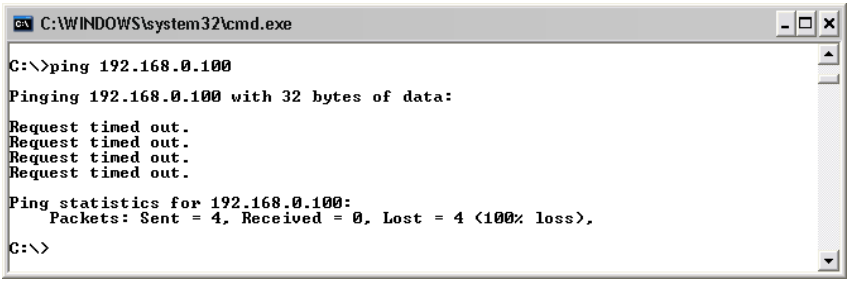
e. In this test, the message "Request timed out" indicates that your PC cannot reach the device with that IP address, and that address is probably not in use. Enter this number into Table 1. If this test indicated that this IP address is in use, try other IP addresses using the steps above until an unused address is found.

2.4 Check LAN for default IP address compatibility

Because all SC Black cameras and encoders are factory configured with the static IP address 192.168.0.100, check the LAN before connecting your encoder to ensure that network conflicts won't occur.

At a Microsoft Windows computer attached to the LAN subnet where the encoder will be connected, open a Command Prompt window and enter:

ping 192.168.0.100



The “Request timed out” response indicates that the IP address is not in use and the encoder can be attached to the network without causing errors.

2.5 Install IPAdmin Tool

The IPAdmin Tool, included on the CD mini disk, will discover encoders installed on your network and enable you to perform the initial network setup for the encoder. After the encoder is setup on the network, the Microsoft® Internet Explorer web browser can be used to see video from the encoder, set the encoder’s password, date and time, finalize encoder hardware adjustments, and configure the encoder for functional requirements.

The IPAdmin Tool can be loaded on a Microsoft Windows XP, Vista or Windows 7 operating system. To use this utility for the initial setup of your encoder, your computer must be connected to the same network subnet as your encoder.

To install the IPAdmin Tool, do the following:

1. Insert the CD mini disk provided with your encoder into your computer’s CD ROM drive and open the CD in a Windows Explorer window.

2. Establish a directory on your computer hard drive for the IPAdmin Tool application.

3. Copy the files IPAdminTool.exe and IPAdminTool.dll to your new directory.

2.6 Install the encoder

1. Determine where the encoder will be mounted and record the Media Access Control (MAC) address of the encoder. The MAC address can be found on a label on the underside of the encoder. Record the information in the following table.

Location:
MAC address:

2. Slide the mounting brackets provided in the hardware kit into the slots on the side of the encoder.

3. Do one of the following:

   – If the mounting surface is a hard material, use the 1/2" self-tapping mounting screws provided in the hardware kit to secure the encoder to the surface.

   – If the mounting surface is a soft material:

      i. Using the encoder with the mounting brackets as a template, mark the location of the mounting screw holes.

      ii. Drill 1/4" holes in the location of the mounting screw holes for the wall inserts provided in the hardware kit.

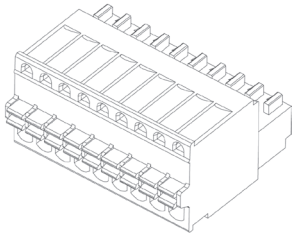
      iii. Tap the wall inserts into the holes until they are flush with the surface.

      iv. Use the 1-1/8" screws provided in the hardware kit to secure the encoder to the surface.

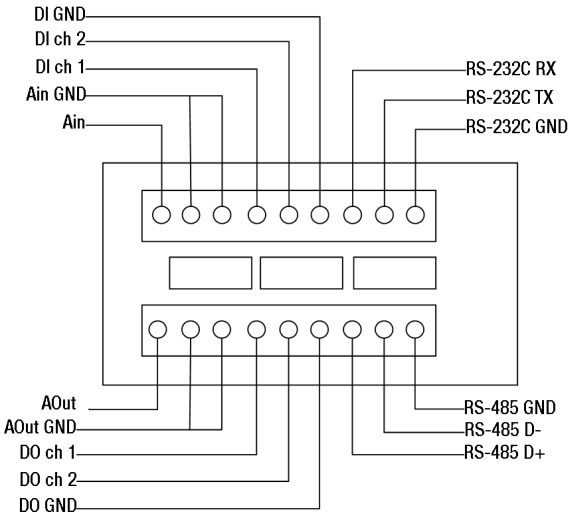
4. Connect an analog signal source (camera video) to the Vin BNC connector on the front of the encoder.

2.7 Connections

Connections to the encoder for audio in and out (microphone and speaker), D/I sensor, alarm, video out BNC, RS-232C, and RS-485 control are made through two 9-pin terminal blocks. The two 9-pin terminal block may be detached from the encoder. Install the two blocks into the connectors on the back of the encoder.



9-pin terminal block



Terminal block pin assignments

2.7.1 Audio in/out connections

The encoder includes an interface for a mono audio input (from a microphone) and a mono audio output (to a speaker). The audio output is a low level signal that requires an amplified speaker (see Specifications).

To connect a speaker and/or microphone to the encoder:

1. Route speaker and/or microphone wiring to the encoder.

2. Strip 1/4” of insulation from the wires speaker signal and ground wires and insert them into the lower terminal block on the AOut and AOut Gnd pins, respectively.

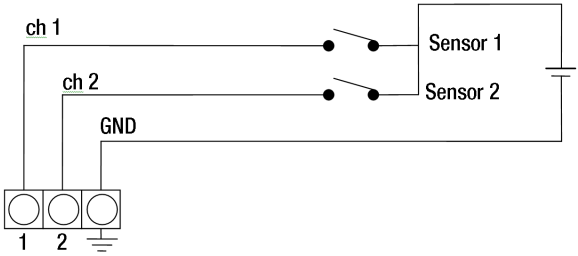
3. Strip 1/4” of insulation from the microphone signal and ground wires and insert them into the upper terminal block on the Ain and Ain Gnd pins, respectively.

2.7.2 Sensor in (DI) connection

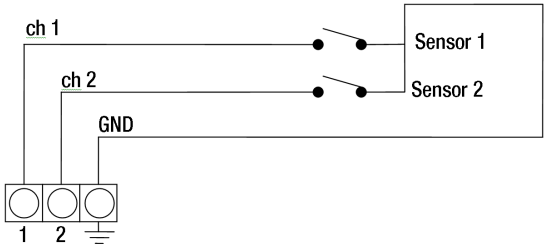
The encoder provides two input channels for sensors. The sensors can be either both voltage type or both relay type sensors, but not one of each. For voltage type sensors, see Specifications for allowable voltage levels. The configuration of the sensor input wiring is illustrated in the diagrams below.

CAUTION

Do not exceed the maximum input voltage or the relay switching rate. Refer to specifications in this manual for more information.



Voltage type sensor wiring schematic



Relay type sensor wiring schematic

To connect a sensor to the encoder:

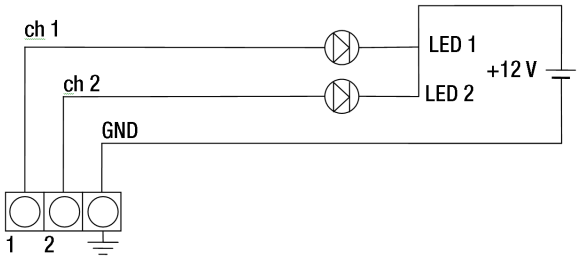
1. Route sensor wiring to the encoder.

2. Strip 1/4" of insulation from one sensor's sense and ground wires and insert them into the upper terminal block in the DI ch 1 and DI GND pin locations, respectively.

3. Strip 1/4" of insulation from another sensor's sense and ground wires and insert them into the upper terminal block in the DI ch 2 and DI GND pin locations, respectively.

2.7.3 Digital out (DO) connection

The encoder supports up to two digital out connections to reporting devices in the configuration shown in the schematic below.



Digital out wiring schematic

To connect digital out reporting device to the encoder:

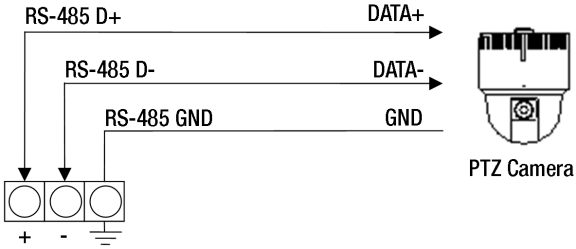
1. Route leads from the digital out devices to the encoder.

2. Strip 1/4" of insulation from one device's signal and ground wires and insert them into the lower terminal block in the DO ch 1 and DO GND pin locations, respectively.

3. Strip 1/4" of insulation from another device's signal and ground wires and insert them into the lower terminal block in the DO ch 2 and DO GND pin locations, respectively.

2.7.4 RS-485 device connection

The encoder provides one RS-485 interface connection. The wiring signal polarity and ground to the lower terminal block are shown in the schematic below.



RS-485 device wiring schematic

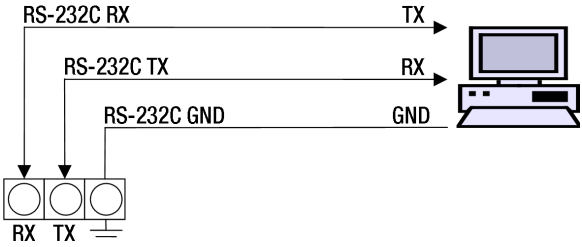
To connect an RS-485 device wiring to the encoder:

1. Route wiring from the RS-485 device interface to the encoder.

2. Strip 1/4" of insulation from DATA+, DATA-, and GND wires from the device and insert them into the lower terminal block RS-485 D+, RS-485 D-, and RS-485 GND pins, respectively, as shown in the schematic above.

2.7.5 RS-232C device connection

The RS-232C encoder interface can be connected to some devices, such as a Point of Sale (POS) terminal. The wiring signal polarity and ground to the upper terminal block are shown in the schematic below.



RS-232C device wiring schematic

To connect an RS-232C device wiring to the encoder:

1. Route wiring from the RS-232C device interface to the encoder.

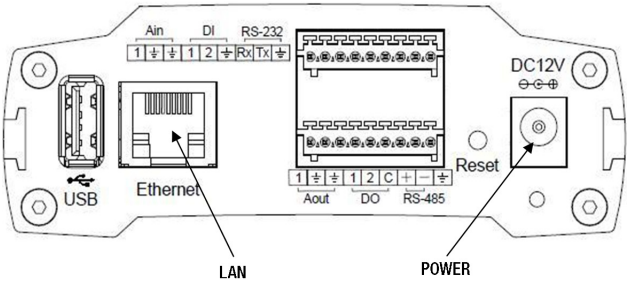
2. Strip 1/4" of insulation from TX, RX, and GND wires from the device and insert them into the upper terminal block RS-232C TX, RS-232C RX, and RS-232C GND pins, respectively, as shown in the schematic above.

2.7.6 LAN, video, and power connections

1. Attach the network LAN cable to the RJ-45 connector on the encoder back panel.

2. Attach the video stream from your camera to the Vin BNC connector on the encoder.

3. If the encoder is not powered through the Ethernet (PoE), attach the DC12V adapter to the power connector on the encoder and plug the power adapter into a power source.



LAN and power connections

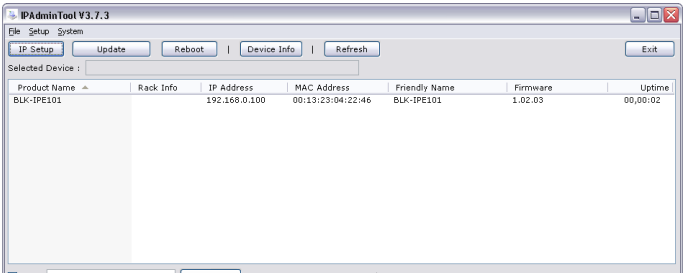
CAUTION

Overvoltage and overcurrent will cause severe damage to the encoder.

2.8 Configure the encoder IP address

1. Open the directory where you installed the IPAdmin Tool. Double click the filename **IPAdminTool.exe** to start the application. When IPAdmin Tool starts, it will discover all of the

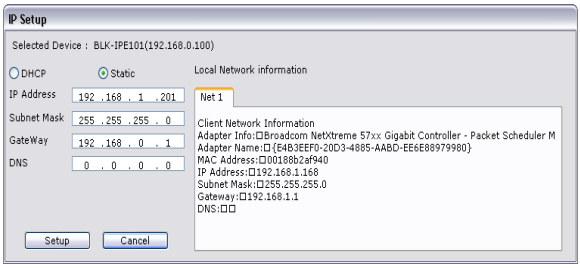
SC Black IP encoders and cameras it supports that exist on the network. The discovery process may take a few minutes.



IPAdmin Tool discovering 192.168.0.100

2. In the Product Name list, find the entry with the same MAC address as the encoder you installed. If the encoder is not shown, click **Refresh** repeatedly to update the list.

3. Right click on the entry for your encoder and select **IP Address**.



IP Setup window

4. In the IP Setup window:

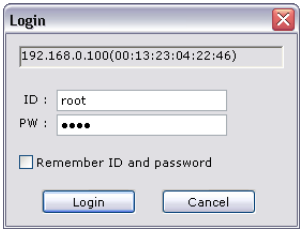
   a. Select the Static option if it is not selected. This option is required for if encoder video will be recorded by a network DVR, or if you want to view video from the encoder across a WAN (Internet).

   b. Enter the IP address for your encoder from Table 1 into the IP Address field.

   c. Enter the subnet mask for your computer from Table 1 into the Subnet Mask field.

d. Click **SETUP**. A Login window will open.

5. In the Login window, enter the ID and PW (password) for your camera and click **Login**. The default administrator values for the ID and PW are **root** and **pass**. After entering ID and PW, the IP Setup window closes.



6. In the IPAdmin Tool window, click **Refresh** and verify that the entry representing the encoder now shows the new IP address.

2.9 Setup the encoder Basic Configuration

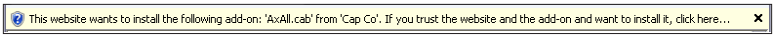
In this procedure, use Microsoft Internet Explorer (IE) browser to setup the encoder administrator and user passwords, date, and time.

1. Open the IE browser.

2. In the URL field (Internet address), enter the IP address for your encoder in the format:

   http://<IP address>/
   where <IP address> is the IP address of your encoder. Following the example earlier in this guide, the entry would be: **http://192.168.1.201**

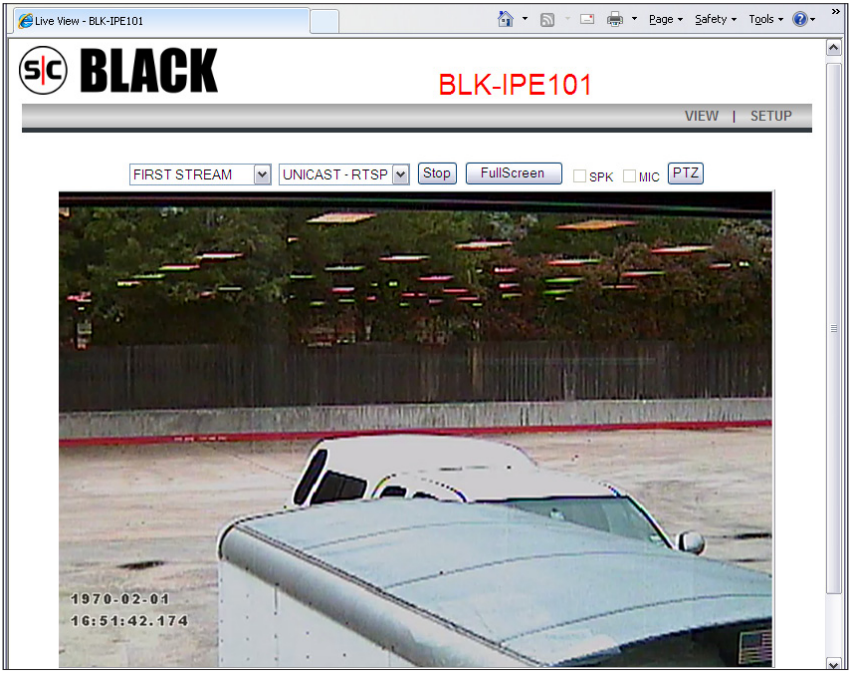
3. If prompted to install an ActiveX control such as AxAll.cab (publisher Cap Co), follow screen prompts to install the software.


This website wants to install the following add-on: 'AxAll.cab' from 'Cap Co'. If you trust the website and the add-on and want to install it, click here...

IE prompt to install ActiveX control

4. Before viewing video from the encoder, a logon prompt may appear. Enter the appropriate ID and PW (password). The default administrator values are:

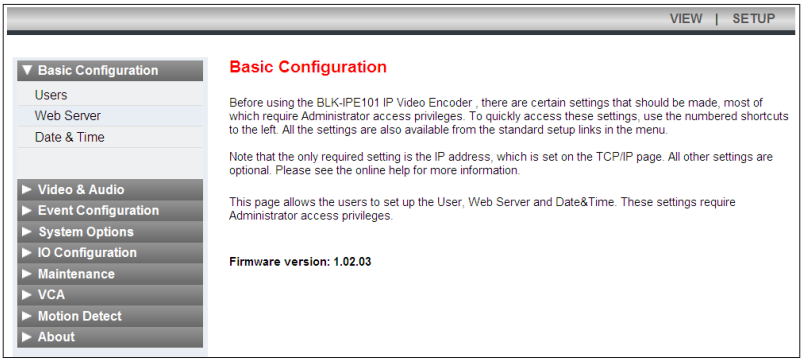
ID: **root**
PW: **pass**



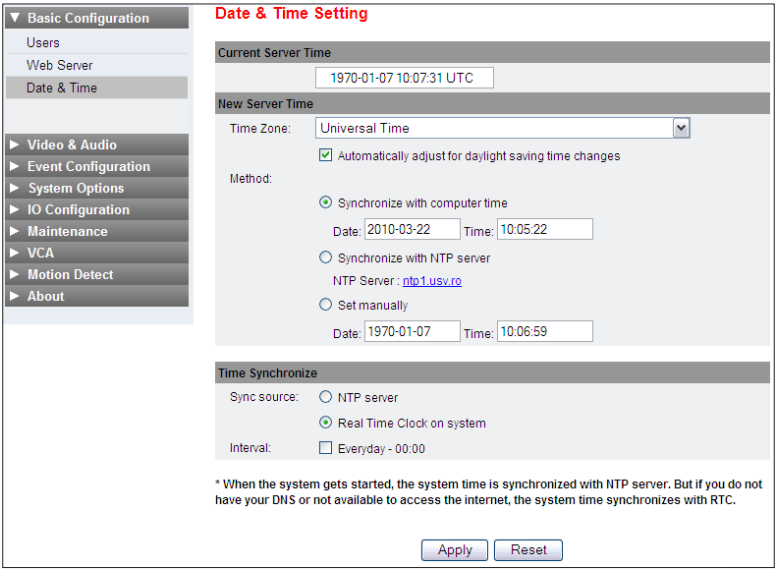
Typical initial camera view through the encoder

NOTE *If, after logging into your encoder, you cannot see live video and the message: "Can not Create XMLDOMDocument Install MSXML4.0" appears, download and install the MS XML 4.0 library. This library can be found at: http://www.microsoft.com/downloads/details.aspx?familyid=3144B72B-B4F2-46DA-B4B6-C5D7485F2B42&displaylang=en*

5. In the camera window, click the **SETUP** link in the upper right corner of the window. Enter the User name and Password for the camera, and click **OK**. The default administrator values are **root** and **pass**. The Basic Configuration window will open.


VIEW | SETUP
Basic Configuration
Users
Web Server
Date & Time
Video & Audio
Event Configuration
System Options
IO Configuration
Maintenance
VCA
Motion Detect
About
Basic Configuration
Before using the BLK-IPE101 IP Video Encoder , there are certain settings that should be made, most of which require Administrator access privileges. To quickly access these settings, use the numbered shortcuts to the left. All the settings are also available from the standard setup links in the menu.
Note that the only required setting is the IP address, which is set on the TCP/IP page. All other settings are optional. Please see the online help for more information.
This page allows the users to set up the User, Web Server and Date&Time. These settings require Administrator access privileges.
Firmware version: 1.02.03

6. Under the Basic Configuration menu, click **Date & Time**.



In the Date & Time Setting options:

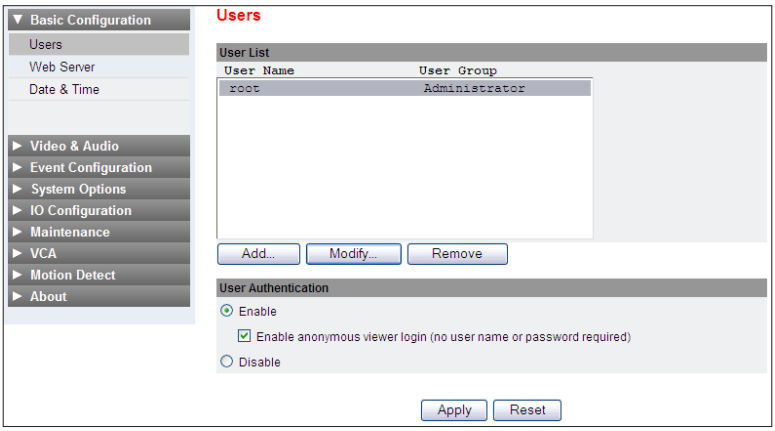
a. Select the Time Zone you prefer.

b. Select the synchronization method, or Set Manually bullet and enter the appropriate information.

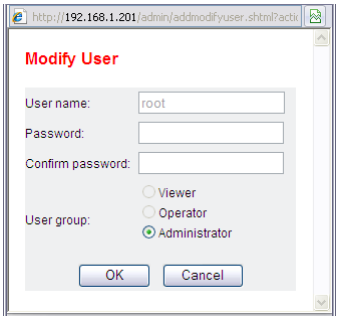
c. Select the Sync Source and Interval you prefer.

d. Click **Apply**.

7. In the Basic Configuration menu, click **Users**.



8. In the User List, click **root**, and then click **Modify** and follow the prompts. Setup the root user with a new password and click **OK**.



9. In the Users menu, click **Apply**, then click **OK** to restart the webserver (if you wish to do so at this time).

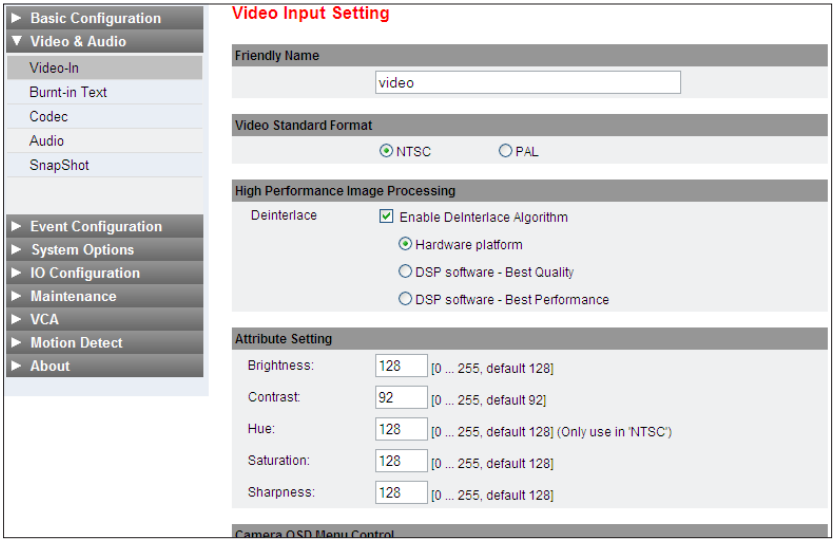
10. Click **Add** to include other administrators, operators or viewers to the user list. Follow the screen prompts to complete the entries.

11. Click **VIEW** in the upper right corner of the window to return to the camera live view.

2.9.1 Image quality adjustments

Adjustments to the image brightness, contrast, hue, saturation, and sharpness are performed through the web browser:

1. From the View window, click: **SETUP** > **Video & Audio** > **Video-In**



2. Scroll to the bottom of the screen and click the **PREVIEW** button. Follow the screen instructions to open the camera view in another IE window.

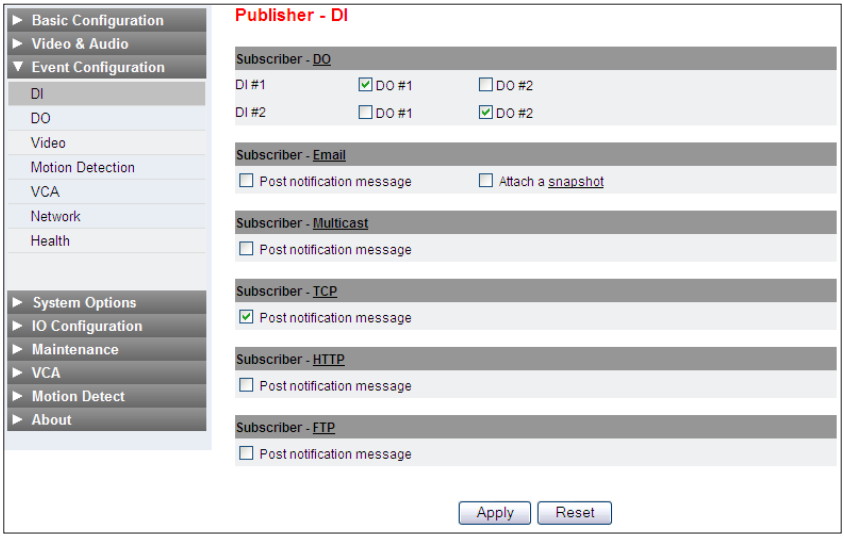
3. While observing the video in the PREVIEW window, adjust the values for brightness, contrast, hue, saturation, sharpness, and/or other parameters on screen. Click **Apply** to see the effect of the change. Make any necessary adjustments to produce the best video image.

4. Close the PREVIEW window and click **VIEW** to return to the normal viewing window.

2.9.2 Setup sensor (DI) and alarm (DO) reporting

Each sensor connected to the encoder can be configured to generate an alarm report to either DO device, generate an email with a snapshot, and post a notification message. These options are selected through the IE browser SETUP Event Configuration menus.

1. From the VIEW window, click: **SETUP** > **Event Configuration** > **DI**



2. On the Publisher DI screen, enable the DO devices for the sensor input (DI).

3. Configure the Subscribe Email, Multicast, TCP, and other settings as needed.

4. Click **Apply**.

5. Under the Event Configuration Menu, click **DO**.

6. Configure the Subscribe Email, Multicast, and TCP settings as needed.

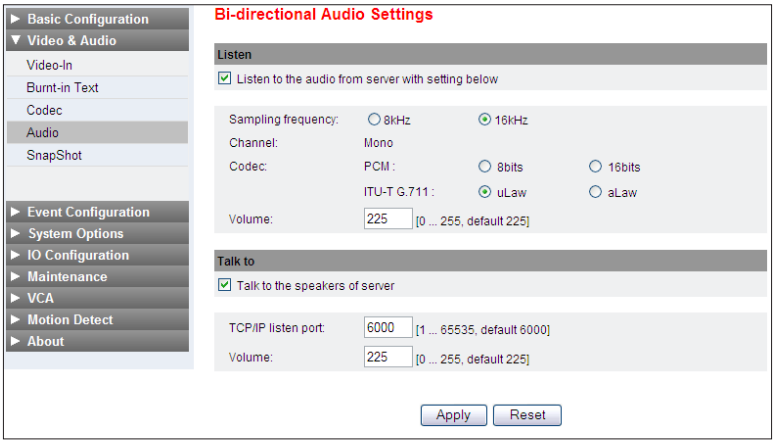
7. Click **Apply**.

8. Click **VIEW** to return to the normal viewing window.

2.10 Final installation checks

During final installation checks, the audio system, sensors and reporting devices, and the RS-485 connection are checked.

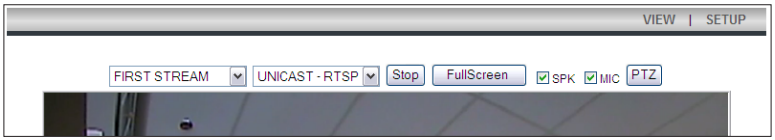
1. On the VIEW screen, click **SETUP** > **Video & Audio** > **Audio** to open the Bi-directional Audio Settings menu.



2. In the Bi-directional Audio Settings menu, click the checkboxes to select “Listen to the audio from server with setting below” and “Talk to the speakers of server”.

3. Click **Apply**, and then click **VIEW** to return to the camera view screen.

4. On the VIEW screen, check the **SPK** and **MIC** options to enable the speaker at the camera and the microphone on your computer.



5. At your computer, listen for sounds from the microphone at the camera. If necessary, adjust the volume from the camera. Click: **SETUP** > **Video & Audio** > **Audio** to re-open the Bi-directional Audio Settings menu. In the Listen frame, adjust the volume to an appropriate level. Click **Apply**.

6. Use a microphone at your PC to send audio to the camera speakers. Verify that your microphone audio is heard at the speaker.

   To adjust the speaker volume go to the Bi-directional Audio Settings menu. In the Talk to frame, adjust the volume to the preferred level. Click **Apply**.

7. At each (DI) sensor, cause a condition that would be produce an alarm condition. Verify that the alarm reporting (DO) device indicates the alarm, and that the alarm is reported as configured through the browser.

8. If an RS-485 device was connected to the encoder, use the browser PTZ button and verify the RS-485 connection.

2.11 Cleaning

Clean the encoder with an approved cleaning solution and a lint free cloth.

- Dust can be removed from the unit by wiping it with a soft damp cloth. To remove stains, gently rub the surface with a soft cloth moistened with a mild detergent solution, then rinse and dry it with a soft cloth.
- Remove all foreign particles, such as plastic or rubber materials, attached to the encoder housing. These may cause damage to the surface over time.

Do not use benzene, thinner or other chemical products on the encoder assembly; these may dissolve the paint and promote damage of the surfaces. Before using any chemical product, read the accompanying instructions carefully.

SECTION 3
Specifications

Table 3. Specifications

Parameter		Value
Video	Number of Streams	Dual Stream, Configurable
	Input channel	1ch
	Output Channel	1 Loop Out
	Compression	H.264, MPEG-4, MJPEG Selectable per Stream
	Resolution	D1, 2CIF, CIF, QCIF
	Compression FPS	25/30fps @ D1
	Video input range	Minimum: 0.25 V p-p; Typical: 1 V p-p; Maximum: 2 V p-p
Audio	Input / Output	1/1ch
	Data Format	PCM & G.711
Network		10/100Base-T
DI/DO (Digital Input/Output)		2/2
RS-232C		Support
RS-485		Support
De-interlacing		Support (Hardware Encoding Engine)
Motion Detection		Support (DSP)
OSD		Support (DSP)
Protocols		SNTP, DHCP, UDP, TCP, RTP, RTSP (unicast, multicast)
External Storage		USB 2.0 & SD memory card slot. (SD card is not included)
Power Source		12 V DC (DC jack)
Power consumption		240 mA @ 12 V DC (approx.)
Power over Ethernet		Support - IEEE 802.3af class 0 (optional)
Operating Temperature		32˚F ~ 122 ˚F (0 ˚C ~ 50 ˚C)
Operating Humidity		Up to 85% RH (non-condensing)
Dimension		4.07" (W) x 1.48" (H) x 5.57" (D)
Weight		0.85 lbs.

Table 4. Video Content Analysis (optional)

VCA Presence	
High Performance	Advanced Tracking Algorithm, Low False Alarm Rate
Easy to Use	Intuitive Web Browser Interface
Detection Zones	Multi-segment Polygons and Lines
On-screen Display	Real-time Display of Tracking Data and Events
VCA Surveillance	
Detection Behavior	Direction, Stopping, Loitering, Entering, Exiting, Appear, and Disappear Filters
3D Behavior	Perspective corrected size and speed filters
Statistics	Counting functions and other statistics
Meta Data	Binary XML format
Image Stabilization	
Electronic Stabilization	Removes camera sway

APPENDIX A
Troubleshooting

A.1 Reboot encoder

NOTE *The reboot process lasts about 2 minutes, during which time the encoder will not respond to the IPAdmin Tool or transmit video to a web browser*

The encoder can be rebooted in two ways:

- Using the IPAdmin Tool:
  a. Start the IPAdmin Tool.
  b. Find the entry for the encoder you want to reboot and click it to select (highlight) it.
  c. Click the **Reboot** button and enter the administrator ID and PW.
  d. Click **Refresh** to re-discover the encoder.
- Using the reset button on the encoder:
  a. Press and hold the reset button on the encoder for 4 seconds.
  b. Click **Refresh** to re-discover the encoder.

A.2 Set encoder to factory default network settings

The encoder network settings can be forced to the factory default values:

- IP address – reset to 192.168.0.1
- Subnet mask – reset to 255.255.0.0
- Gateway – reset to 192.168.0.1
- User ID – reset to root
- Password – reset to pass

To force the encoder to the factory network settings:

1. Disconnect the power (adapter) from the encoder.

2. While pressing and holding down the reset button, power on the encoder.

3. Release the Reset button 5 seconds after applying power.

4. Wait for the encoder to reboot.

A.3 Check firmware version

Firmware is software embedded in the encoder that determines many of its features and functionality. The current firmware version number in your encoder can be found by viewing video from the encoder in IE, and then clicking **Setup** > **About** > **Version**. Contact Supercircuits Support for up-to-date firmware.

A.4 Support

If you cannot resolve an issue, please contact the Supercircuits Support at 1.800.335.9777 for assistance. When you contact support, please provide the server reports, log file and a brief description of the problem, if possible.

- To generate a server reports, enter the following into the IE address field:

  https://<IP ADDRESS>/nvc-cgi/admin/param.cgi?action=list
  - and -
  https://<IP ADDRESS>/nvc-cgi/admin/vca.cgi?action=list

  where <IP ADDRESS> is the IP address of your encoder. The server report contains important information about the device, as well as a list of the current parameters.

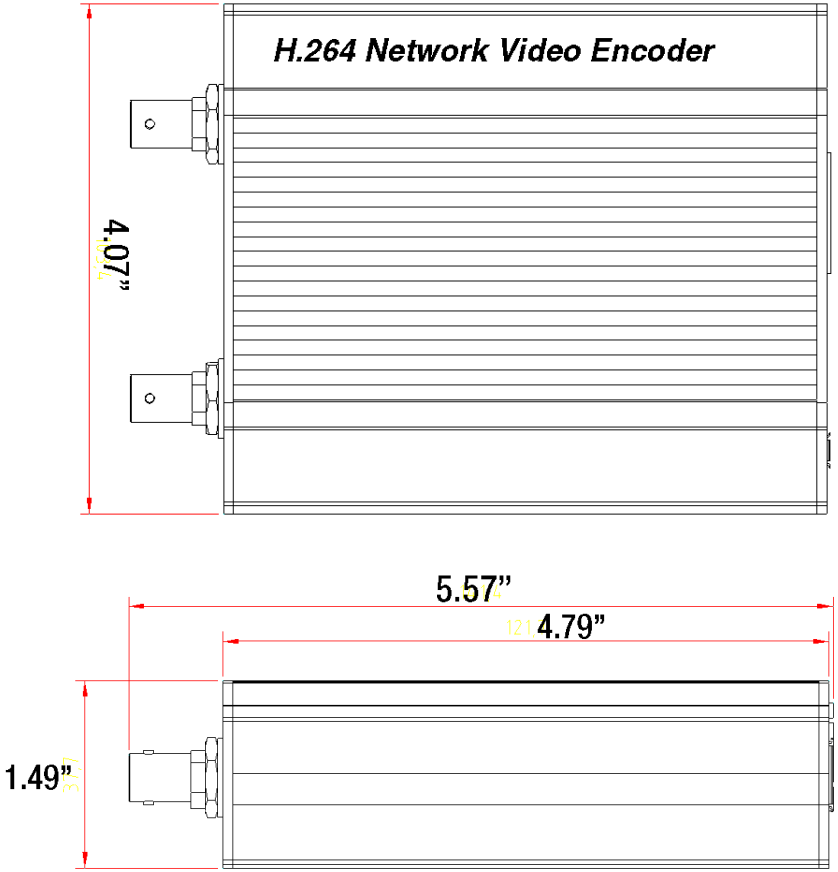
- To generate a log report, use IE to log into the unit. In the View screen, click the following items, entering security information when required:

  SETUP > **Maintenance** > **System Log** > **LOG LIST**

  Click the name of the Log List of interest to open the file.

APPENDIX B

Dimensions



APPENDIX C
Power over Ethernet

The BLK-IPE101 encoder supports Power over Ethernet (PoE) in conformance with the IEEE 802.3af standard. IEEE 802.3af allows for two power options for Category 5 cables.

- The PoE module signature and control circuit provides the PoE compatibility signature and power classification required by the Power Sourcing Equipment (PSE) before applying up to 15 W power to the port.
- The high efficiency AC/DC converter operates over a wide input voltage range and provides a regulated low ripple and low noise output. The AC/DC converter also has built-in overload and short-circuit output protection.

C.1 PoE compatibility

With non Power Sourcing Equipment (PSE)

When it is connected with non PSE, use the power adaptor to provide power to the encoder.

With power adaptor

Connecting both PSE and power adaptor does not do any harm to the products. Disconnecting power adaptor while it is operating does not stop operation. The product continues to work without rebooting.

C.2 Power classification

The PoE Power Class supported by the IP device is Class 0.

Class	Usage	Minimum Power Levels Output at the PSE	Maximum Power Levels at the Powered Device
0	Default	15.4 W	0.44 to 12.95 W